BULLETIN

OF THE INSTITUTE OF METALS

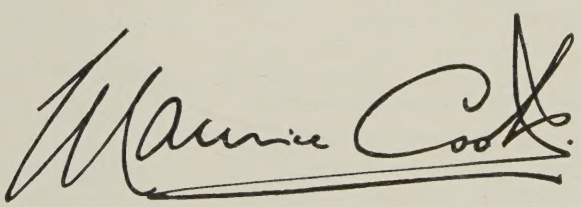
VOLUME 3 JANUARY 1956 PART 5

NEW YEAR MESSAGE FROM THE PRESIDENT

This issue of the Journal *provides me with a welcome opportunity of thanking members of the Institute for their friendly and generous support during my term of office and of sending them New Year greetings, which I do with the greatest sincerity and cordiality.*

I am glad to be able to say that the continued help of members and of industry has enabled the Institute to pursue its policy of extending its activities to cover more completely the varied interests of its membership, which, it is gratifying to record, now exceeds 4500, including more than 1500 in 59 countries overseas.

To all members, wherever they may be, I wish a New Year rich in happiness and fulfilment. May it bring to them not only increased success in all their endeavours, but also, what we all so much desire, the dawn of better understanding and enduring amity between the peoples of all nations.



INSTITUTE NEWS

Election of Council for 1956–57

The following members have been declared elected to fill vacancies on the Council and will take office after the Annual General Meeting on 11 April 1956:

As President:

Major C. J. P. Ball, D.S.O., M.C., F.R.Ae.S., Chairman, Magnesium Elektron, Ltd., Manchester.

As Vice-Presidents:

N. P. Inglis, Ph.D., M.Eng., M.I.Mech.E., F.I.M., Research Director, Imperial Chemical Industries, Ltd., Metals Division, Birmingham.

Ivor Jenkins, D.Sc., F.I.M., Chief Metallurgist, Research Laboratories of The General Electric Co., Ltd., Wembley, Middlesex.

As Ordinary Members of Council:

G. L. Bailey, C.B.E., M.Sc., F.I.M., Director, The British Non-Ferrous Metals Research Association, London.

J. W. Berry, M.I.Mech.E., Joint Managing Director, The Birmingham Aluminium Castings (1903) Co., Ltd., Birmingham.

G. E. Dono, J.P., Director, Sheet Metal Division, The Nuffield Organization, Oxford.

H. M. Finniston, B.Sc., Ph.D., A.R.T.C., F.I.M., Head of the Metallurgy Division, Atomic Energy Research Establishment, Harwell, Berks.

Professor Hugh Ford, D.Sc., Ph.D., Wh.Sch., M.I.Mech.E., Professor of Applied Mechanics, Imperial College of Science and Technology, University of London.

C. H. M. Holden, F.I.M., Managing Director, The Hall Street Metal Rolling Co., Ltd., Birmingham.

Nuclear Energy Committee

The Council has appointed a Nuclear Energy Committee, under the chairmanship of Mr. G. L. Bailey, C.B.E., M.Sc., F.I.M., to stimulate interest in metallurgical problems arising in the industrial and scientific aspects of the use of nuclear energy. The Committee may organize special meetings, discussions, and symposia; invite papers for publication; and arrange for the publication of books or other literature to attain the objects for which it was formed.

In connection with the 1956 Spring Meeting, the Committee has arranged for the discussion, on the afternoon of Wednesday, 11 April, of two invited papers, which will be published in the *Journal* before the meeting. It also hopes to organize, in connection with a Conversazione to be held on Thursday, 12 April, an exhibition of nuclear-energy products.

Informal Discussion on "Furnace Refractories for the Use of the Non-Ferrous Metal Industry"

This all-day discussion (previously announced), arranged by the Metallurgical Engineering Committee, will be held in the Engineering Lecture Theatre, The University, Edgbaston, Birmingham, on Friday, 24 February 1956, starting at 10.0 a.m. Non-members will be welcome. Tickets are not required.

Members and visitors who desire to do so may take lunch (price 6*s*.) in the University Refectory, provided that they apply to the Secretary of the Institute for tickets (sending at the same time a remittance) not later than 16 February.

Symposium on "Metallurgical Aspects of the Control of Quality in Non-Ferrous Castings"

The Council of the Institute of British Foundrymen has accepted an invitation to be associated with the Institute of Metals in arranging a Symposium on "Metallurgical Aspects of the Control of Quality in Non-Ferrous Castings" to be held in connection with the 1957 Spring Meeting of the Institute of Metals.

"Metallurgical Reviews"

Early last year a circular was sent to all members informing them of the Institute's intention to begin publication of a new quarterly, *Metallurgical Reviews*, in 1956. A reply form was enclosed on which members were asked to indicate whether they would certainly, would possibly, or would not, subscribe. Many of these reply forms were duly returned, but a considerable number of them are still outstanding. As it will shortly be necessary to decide the printing order for the first issue of *Metallurgical Reviews*, those members who have not already done so are urgently requested to complete the reply form and return it to the Secretary.

Election of Members

The following 15 Ordinary Members, 1 Junior Member, and 39 Student Members were elected on 25 November 1955:

As Ordinary Members

Fenwick, Alfred, A.I.M., Senior Experimental Officer, United Kingdom Atomic Energy Authority, Windscale Works, Calder Bridge, Cumberland.

Hage, Knut Olof, Engineer, Hard Metal Factory, Söderfors Bruk, Söderfors, Sweden.

Haule, Wilfrid, B.A., B.A.Sc., Process Metallurgist, Noranda Copper and Brass, Ltd., Montreal East, P.Q., Canada.

Hayes, Frederick Christopher, Industrial Education Officer, Training Department, British Iron and Steel Federation, Victoria Street, London, S.W.1.

Jackson, Alec, Works Manager, A. C. Scott and Co., Ltd., Cromaloy House, City Road, Manchester 15.

Korhonen, Aare Einari, Plant Metallurgist, Outokumpu Oy (Outokumpu Metal Works), Pori, Finland.

Middleton, George Frederick, Works Manager, Imperial Chemical Industries, Ltd., Metals Division, Kynoch Works, Birmingham 6.

Morris, Percy, M.I.Mech.E., Engineer, c/o British Iron and Steel Federation, Victoria Street, London, S.W.1.

Rees Jones, Aneurin, B.Sc., Ph.D., A.M.I.Chem.E., Director and General Manager, Parkinson Stove Co., Ltd., Stechford, Birmingham 33.

Roitto, Rauno Rikhard, Consulting Engineer, Outokumpu Oy (Outokumpu Metal Works), Pori, Finland.

Roy, Leslie Victor, Chief Foundry Technician, The Fullers' Earth Union, Ltd., Patteson Court, Nutfield Road, Redhill, Surrey.

Samuli, Hulmi Vaino, Dipl.Eng., Assistant Engineer for Sintering of Hard Metals, Oy Kovametalli AB, Tallbergink 1, Helsinki, Finland.

Stanley, Herbert Howard, Assoc.Met., F.I.M., Chief Metallurgist, The Steel Company of Wales, Ltd., Newport Division, Orb Works, Newport, Mon.

VOSSKÜHLER, Hugo, Dr.-Ing., Leiter der Prüf- und Forschungsanstalt, Wieland-Werke A.G., Ulm/Donau, Germany.

WELLBORN, William Wayne, B.S., Manager, New Products Research and Development, Firth Sterling, Inc., 3113 Forbes Street, Pittsburgh 30, Pa., U.S.A.

As Junior Member

GAYNON, Gerald, B.A.Sc., Process Metallurgist, Noranda Copper and Brass, Ltd., Montreal East, P.Q., Canada.

As Student Members

BARROW, Denis Adrian, Undergraduate, Department of Metallurgy, University of Manchester.

BOYD, Ian Hugh, B.A., Department of Metallurgy, Inorganic Chemistry Laboratory, South Parks Road, Oxford.

BRANCH, Gordon Donald, Undergraduate, St. Catharine's College, Cambridge.

BROOK, Peter Arthur, B.A., Research Student, Department of Metallurgy, University of Nottingham.

BROWN, Arthur, Undergraduate, King's College, University of Durham.

BRYANT, David Lindsey, Assistant Welding Engineer, The Commonwealth Industrial Gases, Ltd., 138 Bourke Road, Alexandria, Sydney, N.S.W., Australia.

BUCKLEY, John Inglis, Undergraduate, College of Technology, Manchester.

CLARK, John McIntyre, Undergraduate, Royal School of Mines, London, S.W.7.

COCKAYNE, Brian, Undergraduate, Department of Metallurgy, University of Birmingham.

CRAWLEY, Warwick Lloyd, Undergraduate, Department of Metallurgy, University of Cambridge.

DAVIES, David John, Undergraduate, Christ's College, Cambridge.

ENSOR, Thomas Francis, Assistant Metallurgist, Process Development Laboratory, Henry Wiggin and Co., Ltd., Wiggin Street, Birmingham 16.

FAIRMAN, Lawrence, Undergraduate, King's College, University of Durham.

GHATE, Vithal Balwantrao, B.E., Research Student, Royal School of Mines, London, S.W.7.

HINE, Alan John, Undergraduate, University of Cambridge.

HYDON, Michael Ellsworth, Undergraduate, University of Cambridge.

JONES, Michael M., Undergraduate, University of Cambridge.

KAPLISH, Bal Krishan, B.Tech., Postgraduate Student in Metallurgy, University of Sheffield.

KNOWLSON, Peter McKerrow, Undergraduate, Clare College, Cambridge.

LLOYD, David Alun, B.Sc., Postgraduate Student, Department of Metallurgy, University College, Cardiff.

MAY, Walter Maxwell, Undergraduate, King's College, University of Durham.

MIDDLETON, John, Undergraduate, Department of Metallurgy, University of Sheffield.

NICHOLSON, Robin Buchanan, Undergraduate, St. Catharine's College, Cambridge.

OXLEY, Brian William, Undergraduate, Peterhouse, Cambridge.

PESSALL, Neil, Undergraduate, Department of Metallurgy, University of Birmingham.

PRIEST, Peter Wilfrid, Undergraduate, Department of Metallurgy, University of Sheffield.

PRISK, William Terence, Undergraduate, University of Cambridge.

REARDON, Denis Francis, Undergraduate, Department of Metallurgy, University of Birmingham.

ROBINSON, Peter Mather, Undergraduate, Department of Metallurgy, University College, Cardiff.

SAYERS, Allen Terry, Undergraduate, Royal School of Mines, London, S.W.7.

SHWE, Tin Maung, B.Sc., Undergraduate, Royal School of Mines, London, S.W.7.

STEVENSON, Joseph Aidan, B.Sc., Instructor Lieutenant, Royal Navy, H.M.S. *Ocean*, c/o G.P.O., London.

SWANN, Peter R., Undergraduate, Department of Metallurgy, University College, Swansea.

THOMPSON, Noel Brenthall Watson, Undergraduate, Trinity Hall, Cambridge.

WILD, Frank, Undergraduate, Department of Metallurgy, University of Sheffield.

WILLIAMS, Alwyn, B.Sc., 45 Foreland Road, Whitchurch, Cardiff.

WOOD, Graham Charles, Undergraduate, Department of Metallurgy, University of Cambridge.

WOODROW, Peter Alastair, Undergraduate, Department of Metallurgy, University of Manchester.

YOUNG, John Marsden, Undergraduate, Department of Metallurgy, University College, Swansea.

Binding Cases

Binding cases for the *Journal* Vol. 82 and *Metallurgical Abstracts* Vol. 21 are now available and may be obtained free by members and subscribers on application to the Secretary.

PERSONAL NOTES

DR. S. A. AHERN is spending a year as Research Associate in the Department of Ceramics of Pennsylvania State University.

MR. J. K. ALMOND has taken a post with Gambian Minerals, Ltd., Bathurst, Gambia.

DR. G. L. J. BAILEY has been appointed Superintendent of the Platinum Metals Research Laboratory in the Development and Research Department of The Mond Nickel Co., Ltd., Acton, London, N.W.10. He succeeds Dr. E. C. Rhodes. Dr. Bailey has been on the staff of the British Non-Ferrous Metals Research Association since 1945, latterly as Deputy Research Manager.

DR. B. R. BANERJEE has been appointed Leader of the X-Ray and Electron-Diffraction Group in the Engineering Research Department of Standard Oil Co., Whiting, Ind.

MR. E. J. BRADBURY has been appointed Assistant Superintendent of the Development and Research Department Laboratory of The Mond Nickel Co., Ltd., Birmingham. He first joined the Company in 1941, and recently has been Development Officer in charge of non-ferrous wrought alloys.

MR. W. R. BRAITHWAITE has left Magnesium Elektron, Ltd., to become metallurgist in the Corrosion Research Laboratories of British Insulated Callender's Cables, Ltd., Liverpool.

DR. WEN HSIANG CHANG has recently joined the Materials and Processes Laboratory of the General Electric Company's large steam turbine-generator department at Schenectady, N.Y.

MR. D. W. CHISHOLM has been appointed Senior Standards Engineer, British Oxygen Engineering, Ltd., Edmonton, London.

Mr. R. G. Cope has left the Royal School of Mines, after completing two years' postgraduate research, and is now a Scientific Officer at the Atomic Weapons Research Establishment, Aldermaston.

Dr. D. W. Davidson has taken an appointment with The Plessey Co., Ltd., Towcester, Northants.

Mr. D. Eurof Davies has been appointed a lecturer in the Department of Metallurgy, University College, Swansea.

Mr. E. G. Eeles has left Birmingham University and now has a Post-Doctorate Fellowship in the Solid-State Physics Group of the National Research Council, Ottawa.

Dr. A. E. El-Mehairy has taken up an appointment as Lecturer in Metallurgy in the Faculty of Engineering, University of Cairo.

Professor F. A. Forward, Head of the Department of Mining and Metallurgy, University of British Columbia, has been awarded the McCharles prize and gold medal by the University of Toronto. The award is in recognition of his work in inventing and developing pressure leaching processes for the recovery of uranium, nickel, copper, and cobalt.

Mr. J. R. V. Harvey has left T.I. (Group Services), Ltd., and taken an appointment with British Insulated Callender's Cables, Ltd., Wood Lane, London.

Dr. D. E. R. Hughes has joined the U.K. Atomic Energy Authority as metallurgist to the Operations Branch at Industrial Group Headquarters, Risley, Lancs.

Mr. J. W. Jones, Head of the Materials and Metallurgy Section, College of Aeronautics, Cranfield, has been elected an Associate Fellow of the Royal Aeronautical Society.

Mr. A. Makower has been appointed a Director of Goodlass Wall and Lead Industries, Ltd.

Dr. J. G. Parr has been appointed Associate Professor of Metallurgy at the University of Alberta, Edmonton, Canada.

Dr. J. V. Philip has joined the staff of the Department of Mining and Metallurgical Engineering of the University of Illinois, Urbana, Ill., as Research Assistant.

Mr. S. Ramamurthy has left the Banaras Hindu University on his appointment as Assistant Professor of Foundry Engineering at the Indian Institute of Science, Bangalore.

Mr. S. G. Temple has been appointed Technical Manager of the Metal Production Department of Imperial Chemical Industries, Ltd., Metals Division.

Mr. W. R. Thomas has left the British Iron and Steel Research Association and has joined the staff of the Chemistry and Metallurgy Division, Atomic Energy of Canada, Ltd., Chalk River, Ontario.

Mr. G. Vestey has been appointed Works Director of British Lead Mills, Ltd., Welwyn Garden City, Herts.

Mr. S. Walker has been appointed Head of Laboratory of Briggs Motor Bodies, Ltd., Dagenham.

Mr. H. C. Watkins has left H. J. Enthoven and Sons, Ltd., to become a metallurgist in the Technical Liaison Section of the Aluminium Wire and Cable Co., Ltd., Swansea.

Death

The Editor regrets to announce the death of:

Colonel Nicholas Timothy Belaiew, C.B., in Paris on 5 November 1955. He was formerly Honorary Corresponding Member to the Council for Russia.

OTHER NEWS

Awards for Essays and Papers on Corrosion Science

The Education Panel of the Corrosion Group of the Society of Chemical Industry announces the establishment of a competition designed to encourage those who are still in the early stages of their career to take an interest in corrosion science and to express their ideas in writing. Details are as follows:

(1) With the support of industrialists interested in the application of corrosion science in industry, it is proposed to offer a prize of the value of 25 guineas to be awarded annually for an essay or paper on any aspect of corrosion of metals and its prevention.

(2) Essays are invited from persons aged not more than 27 years on the closing date. A length of about 3000 words is suggested, but reasonable latitude may be exercised.

(3) Judgment of the entries by a specially appointed panel will be based on arrangement of material, technical and literary excellence, and the evidence shown of the candidate's critical faculty and originality of thought. It is not necessary that the results of original research should be incorporated; entries may include, for example, surveys of knowledge in a particular field, discussion of practical problems, and suggestions for future developments in research, in applications of knowledge, or in organization of corrosion-preventive measures. The prize may be withheld if, in the opinion of the judges, no entry of sufficient merit has been received.

(4) Any candidate may subsequently be invited to deliver his or her contribution as a lecture.

(5) Publication of any entry will rest with the Society of Chemical Industry, subject to the regulations of the Society.

(6) Entries should preferably be typed (double spaced), and must be on one side of the paper only, with adequate margins. The candidate's name must not appear on the script. The entry must be enclosed in a sealed envelope bearing a pen-name. A second sealed envelope also bearing the pen-name and enclosing a statement of the full name, address, and date of birth of the author must accompany the entry. The second envelope will be opened in the presence of the Committee of the Education Panel when the judges make their reports. Illustrations (diagrams and/or photographs) may be included with the entry, but must not provide means of identifying the author.

(7) The closing date for receipt of entries is 31 March 1956. They should be addressed to: Corrosion Group Essay Competition, c/o Society of Chemical Industry, 56 Victoria Street, London, S.W.1.

DIARY

Local Sections and Associated Societies

16 January. Sheffield Local Section. Address by the President of the Sheffield Society of Engineers and Metallurgists. (Engineering Lecture Theatre, The University, St. George's Square, Sheffield 1, at 7.30 p.m.)

18 January. Manchester Metallurgical Society. "Applications of Ultrasonics in Metallurgy", by P. D. Southgate. (Lecture Room, The Central Library, Manchester, at 6.30 p.m.)

19 January. North East Metallurgical Society. "Sixty Years of Non-Destructive Testing", by J. F. Hinsley. (Cleveland Scientific and Technical Institution, Middlesbrough, at 7.15 p.m.)

26 January. Birmingham Local Section. "Electrolytic and Chemical Methods of Brightening", by H. Silman. (Birmingham Exchange and Engineering Centre, Stephenson Place, Birmingham, at 6.30 p.m.)

1 February. Manchester Metallurgical Society. "Cast Iron", by I. C. H. Hughes. (Lecture Room, The Central Library, Manchester, at 6.30 p.m.)

2 February. Birmingham Local Section. "Modern Case-Hardening Processes", by P. F. Hancock. (James Watt Memorial Institute, Great Charles Street, Birmingham, at 6.30 p.m.)

2 February. Leeds Metallurgical Society. "Metallurgy in Relation to Gas Turbines", by Dr. J. M. Robertson. (Large Chemistry Lecture Theatre, The University, Leeds 2, at 7.15 p.m.)

2 February. London Local Section. "Thermit Processes", by T. Burchell. (4 Grosvenor Gardens, London, S.W.1, at 6.30 p.m.)

7 February. Oxford Local Section. Junior Members' Evening. Discussion on Purification: (1) Zone Refining of Metals. (2) Vacuum Distillation of Metals. (3) Properties of Super-Purity Aluminium. (Cadena Café, Cornmarket Street, Oxford, at 7.0 p.m.)

7 February. South Wales Local Section. "Shell Moulding", by M. C. Dixon. (Department of Metallurgy, University College, Singleton Park, Swansea, at 6.45 p.m.)

9 February. Liverpool Metallurgical Society. "Radiation Damage to Metals", by Dr. W. M. Lomer. (Liverpool Engineering Society, 9 The Temple, Dale Street, Liverpool, at 7.0 p.m.)

13 February. Scottish Local Section. "Titanium", by Dr. J. W. Rodgers. (Institution of Engineers and Shipbuilders in Scotland, 39 Elmbank Crescent, Glasgow, C.2, at 6.30 p.m.)

15 February. Manchester Metallurgical Society. "The Mechanical Properties of Metals", by Professor R. W. K. Honeycombe. (Lecture Room, The Central Library, Manchester, at 6.30 p.m.)

Other Societies

16 January. East Midlands Metallurgical Society. "Weather Forecasting", by A. E. Mayers. (Nottingham and District Technical College, Shakespeare Street, Nottingham, at 7.30 p.m.)

17 January. Institute of British Foundrymen, East Anglian Section. I.B.F. Sub-Committee T.S. 43 Report: "Cupola Developments", introduced by W. J. Driscoll. (Central Hall, Public Library, Ipswich, at 7.30 p.m.)

17 January. Institute of British Foundrymen, Slough Section. "Foundry Dust Hazards", by E. B. James and W. B. Lawrie. (Lecture Theatre, High Duty Alloys, Ltd., Slough, at 7.30 p.m.)

17 January. Royal Aeronautical Society. Section Lecture. "Crack Detection in Aircraft Structures", by Dr. W. Deck. (The Library, Royal Aeronautical Society, 4 Hamilton Place, W.1, at 7 p.m.)

18 January. Institute of British Foundrymen, London Branch. "Latest Developments in Spheroidal-Graphite Iron", by W. W. Braidwood. (Waldorf Hotel, London, W.C.2, at 7.30 p.m.)

18 January. Royal Institute of Chemistry, London Section. "Science in the Service of Archaeology", by Dr. H. J. Plenderleith (Joint meeting with the London Section, Society of Chemical Industry). (Institute of Metals, 4 Grosvenor Gardens, London, S.W.1, at 6.30 p.m.)

19 January. Institution of Mining and Metallurgy. General Meeting. (Rooms of the Geological Society, Burlington House, Piccadilly, W.1, at 5.0 p.m.)

25 January. Society of Chemical Industry, Corrosion Group. "Prevention of Corrosion in the Heavy Chemical Industry", by F. R. Himsworth and W. D. Clark. (Joint meeting with Chemical Engineering Group.) (King's College, Strand, London, W.C.2, at 6.30 p.m.)

26 January. Institute of Fuel, Midland Section. "The Occurrence, Extraction, and Properties of Germanium", by A. R. Powell. (James Watt Memorial Institute, Great Charles Street, Birmingham 3, at 6 p.m.)

31 January. Society of Chemical Industry, Corrosion Group. "La Co-operation Technique Européenne", by J. Gérard. (S.C.I. Jubilee Memorial Lecture.) (Royal Institution, Albemarle Street, London, W.1, at 6 p.m.)

7 February. Society for Analytical Chemistry, Midlands Section. Discussion on "The Analytical Chemistry of Germanium and Gallium", to be opened by H. J. Cluley and G. W. C. Milner. (The University, Birmingham 3, at 7 p.m.)

9 February. Institute of British Foundrymen, Beds./Herts. Section. Technical Films. (K. & L. Steelfounders & Engineers, Ltd., Letchworth, at 7.30 p.m.)

9 February. Institute of Welding, South London Branch. "Welding Metallurgy and Electrode Development", by J. Mercer. (2 Savoy Hill, London, W.C.2, at 6.30 p.m.)

14 February. East Midlands Metallurgical Society. Members' Night (Short papers given by Society members). (Nottingham and District Technical College, Shakespeare Street, Nottingham, at 7.30 p.m.)

14 February. Institute of Welding, Slough Section. "The Part of Resistance Welding in Automation", by R. W. Ayers. (Lecture Room, Community Centre, Farnham Road, Slough, at 7.30 p.m.)

APPOINTMENTS VACANT

B.W.R.A. requires a qualified metallurgist for fundamental work on the welding of zirconium and zirconium alloys, including effect of welding technique and alloy constitution on weldability and the determination of continuous cooling transformation characteristics. A good metallurgical background and knowledge of metallographic methods is necessary, but experience of welding is not essential. The appointment will be made either in the Research Officer or Senior Research Officer grade, according to age and experience. Salary will be within the range £550–£850 p.a. Initially the work will be located at Park Crescent, London, but it will be transferred to Abington, Cambridge, on the completion of the new metallurgical laboratories now under construction. Apply, Secretary, B.W.R.A., 29 Park Crescent, London, W.1.

G.K.N. GROUP RESEARCH LABORATORY requires a metallurgist to carry out work in the field of titanium and its alloys. Candidate must have 1st or 2nd Class Honours Degree in Metallurgy and at least 2 years' post-graduate experience. Applications, in writing, giving full details, should be made to the Director of Research, G.K.N. Group Research Laboratory, Birmingham New Road, Lanesfield, Wolverhampton.

QUALIFIED METALLURGIST aged between 25 and 30 required by steel-strip manufacturing company to take control of new laboratory. Applicants should be capable of taking complete responsibility for analytical and metallurgical control of raw materials and heat-treatment processes and for the direction of approved inspection organization. This is a senior staff appointment, and a non-contributory pension scheme is in operation. Applications in writing, stating age, qualifications, previous industrial experience, and salary required, to: Charles Cooper (Tipton), Ltd., Locarno Road, Tipton, Staffs.

G.E.C.

Research Laboratories

NORTH WEMBLEY, MIDDLESEX

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GRADUATES

of outstanding and proven ability in research in PHYSICS, ENGINEERING, CHEMISTRY and METALLURGY, are required to strengthen the research staff of THE GENERAL ELECTRIC COMPANY.

The Research Laboratories at Wembley are in pleasant surroundings yet convenient to the scientific and cultural amenities of London. The range of work and choice of subjects is wide. Scientific publication is encouraged.

The openings provide excellent opportunities for continuing contact with the academic schools of the country while working in association with a progressive manufacturing industry. Salaries offered will be commensurate with the expected standard of ability.

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Anyone having the necessary high qualifications who is interested in exploring the opportunities presented by these appointments, is invited to apply to the Staff Manager (Ref. RLO/64), Research Laboratories, The General Electric Co. Ltd., East Lane, North Wembley, Middlesex.

METALLURGIST required by Foundry Services, Ltd., for their American Company. Applicants should have metallurgical and chemical qualifications and experience in controlling laboratory staff. They should also be prepared to emigrate or reside in America for a minimum period of three years. Replies, which will be treated in strictest confidence, should be addressed to: Technical Manager, Foundry Services, Ltd., Long Acre, Nechells, Birmingham.

METALLURGICAL CHEMIST to take charge of new works laboratory controlling production of Nickel Alloys. Unusual opportunity to progress on to production side. Metals and Methods, Ltd., Bacon Works, Langley, Nr. Slough, Bucks.

METALLURGIST

Metallurgist required for the Research Department of an engineering works engaged in the manufacture of heavy electrical generating plant. Candidates should have an honours degree in metallurgy or equivalent qualifications. Previous experience is not essential, but would be an asset, especially in the fields of engineering or physical research. Successful candidates will obtain wide experience in the application of metallurgical research to mechanical and electrical engineering problems.

RESEARCH METALLURGIST

Metallurgist required for research work of a fundamental character. Candidates should possess an honours degree in metallurgy. Post-graduate research experience is not essential. The successful candidate will have an opportunity for work (in a well-equipped laboratory) on metallurgical developments associated with steam and gas turbine manufacture and allied electrical equipment. Write for application form, marking envelope "U.3", to: Personnel Manager, Metropolitan-Vickers Electrical Co., Ltd., Trafford Park, Manchester 17.

PHYSICISTS OR ENGINEERS are required to undertake the following work in our well-equipped laboratories, where unrivalled facilities for research work are available, and freedom to publish original research is encouraged.

ELECTRON MICROSCOPY

A *science graduate*, with some experience in electron microscopy, and a younger *graduate*, without previous experience, are required.

This work offers an unusually wide scope for originality in applied electron microscopy.

VACUUM DEPOSITION

New developments in vacuum deposition processes require additional technical staff.

A *physicist*—preferably with some basic knowledge of solid state physics—is required to undertake fundamental work in this connection.

A *technical assistant* is also required for this work.

VACUUM BREAKDOWN

A *science or electrical engineering graduate*, preferably but not essentially with some experience of high-vacuum technology, is required to undertake a programme of fundamental work relating to vacuum breakdown.

A *technical assistant is also required for this work.*

Apply in writing, marking envelope, "Y.3", to: Personnel Manager, Metropolitan-Vickers Electrical Co., Ltd., Trafford Park, Manchester 17.

THE MOND NICKEL CO., LTD., requires, for a senior post on the staff of its Birmingham Research Laboratory, a powder metallurgist of honours degree standard, for fundamental and development work on special alloys. Apply, stating age, qualifications, experience, and salary required, to the Manager, Development and Research Department, The Mond Nickel Co., Ltd., Thames House, Millbank, London, S.W.1. Mark envelope "Confidential L.24".

TWO RESEARCH METALLURGISTS for senior positions are required by Foundry Services, Ltd., for interesting research and development work on chemical and metallurgical problems associated with all branches of the foundry industry. One of these positions will require a certain amount of travel abroad for limited periods. Replies, which will be treated in strictest confidence, should be addressed to Technical Manager, Foundry Services, Ltd., Long Acre, Nechells, Birmingham.

WORKS MANAGER required for a factory in South London engaged in light engineering, metallurgical, and chemical processes. Applicants should have first-class experience in works management, and training in production engineering will be a recommendation; this is a senior post. Applicants should reply giving all relevant information: salary up to £3000 paid to right man. Reply Box No. 401, The Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.